AMSAT News Service Weekly Bulletins
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SB SAT @ AMSAT $ANS-180.01
PROGRESS COLLIDES WITH MIR

HR AMSAT NEWS SERVICE BULLETIN 180.01 FROM AMSAT HQ
SILVER SPRING, MD, JUNE 29, 1997
TO ALL RADIO AMATEURS BT
BID: $ANS-180.01

On Wednesday June 25 at 9:18 UTC a Russian Progress cargo ship collided with the Spektr module of the MIR space station causing substantial damage to the module. All personnel on board, including US astronaut Mike Foale, KB5UAC, and two cosmonauts were unhurt in the incident.

The Progress cargo ship, filled with garbage and undocked the day before, was performing a manual docking test with the Kvant module, when it veered out of control and struck the solar array and thermal control assembly on the Spektr module. During the collision, the aluminum hull of the Spektr module was punctured, resulting in an air leak. In a manner similar to damaged ships at sea, the Spektr module was quickly sealed off from the rest of MIR to maintain a livable atmosphere for the astronaut and cosmonauts. The Spektr module is now close to a space vacuum environment. It is unclear where the leak occurred or the size or shape of the gash in the module.

Nearly all astronaut Mike Foale's personal effects as well as his sleeping quarters were located in Spektr. As a result, he has moved into a new sleeping area and additional personal effects will be included on the next resupply ship. Many of the US experiments were also housed in the Spektr and are now lost. However, two major US experiments were located in the Piroda module and are in fine shape.

The Solar Array damage initially resulted in a 50% reduction in electrical power. Over the past few days, the crew has worked the power issue and have now regained about 70% of the pre-collision power capability. Flight controllers are developing procedures to recover full use of the solar arrays on Spektr. The options include a possible procedure to hook cables from the Spektr to the MIR's base block to route power from the disabled module to operational batteries. The two Russian cosmonauts, Commander Vasily Tsibliev, and Flight Engineer Alexander Lazutkin would perform a space walk to accomplish this. It is expected that this space walk, or EVA, would not occur earlier than mid-July, following the arrival of hardware and new cables on the next Progress ship. The launch of the next Progress resupply ship is planned for early July.

Despite the recent problem on MIR, the crew is in good spirits. They will be working hard in the weeks ahead to bring MIR back to it's pre-accident state. Despite the problem, Mike Foale has been active on amateur radio during the past few days. The radio has served as a valuable link between Mike and his family and friends during this crisis.

[ANS thanks Frank H. Bauer, KA3HDO, AMSAT-NA, VP,

Manned Space Programs for this information.]

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SB SAT @ AMSAT $ANS-180.02
HAM RADIO DURING MIR CRISIS

HR AMSAT NEWS SERVICE BULLETIN 180.02 FROM AMSAT HQ
SILVER SPRING, MD, JUNE 29, 1997
TO ALL RADIO AMATEURS BT
BID: $ANS-180.02

For US ham-astronaut Mike Foale, KB5UAC, aboard the crippled MIR space station, ham radio is providing a valuable supplement to conventional Russian and NASA communication systems. Foale has already used the ham gear aboard MIR to talk to NASA managers and fellow astronauts and exchange health and welfare news as the crew struggles to stabilize the ship after Wednesday's collision with an unmanned cargo rocket.

Astronaut friends of Foale's gathered late Wednesday morning--just hours after the mishap--at W5RRR at Johnson Space Center in Houston for the scheduled MIR pass and QSO. "When we got there, it was a packed room. Ninety percent of the room was licensed astronauts," said Matt Bordelon, KC5BTL, the SAREX principal investigator.

As Bordelon related: "A hush fell over the room as MIR started its trek above the horizon. We didn't know if they would be on--power was down to 50% available and all nonessential equipment was turned off. Before we even had a chance to call up, Mike called down for us!"

Following a collective sigh of relief, Bordelon said astronaut Dave Leestma, N5WQC, took the mike and started talking. "Mike was in Good spirits. "Several others in the room also chatted with Foale during the 10-minute contact.

Foale asked for some personal items to be sent up when the next Progress supply ship flies. And he had good news. Two of his major experiments are okay. They are in the Priroda module where he and the cosmonauts are living until repairs can be made to the damaged Spektr compartment. At that time the MIR station should be able to resume normal ham radio contacts. "Amateur Radio has a very low priority when survival is the key, and power is critical on MIR," Neal said in assessing the situation. A supply ship is being readied and could carry a replacement solar panel and other supplies to MIR within two or three weeks. NASA Shuttle-MIR Project Manager Frank Culbertson said repairs likely would require a space walk or two by the MIR crew.

"It was a very successful pass," Bordelon said of Wednesday's contact with Foale. "All were very thankful for the ham radio and the excellent link it provided." Bordelon said he does not expect Foale to have the ham radio on at all times during the current crisis, "but I think he'll do more passes with us," he added.

Bordelon said that astronaut Ken Bowersox was so impressed, "he wants to get his license next week." As SAREX Working Group Chairman Roy Neal, K6DUE, put it: "It's proving that ham radio, as always, is an invaluable aid to health and welfare during critical times." As repairs progress, Neal said, "it's safe to say that disaster has been avoided. Repairs probably can and will be made, and ham radio will continue providing a personal link to help Mike Foale stay in touch with his home base."

Ham-astronaut and former MIR crew member Jerry Linenger, KC5HBR, told reporters Wednesday that the MIR crew had to power down everything everything possible, including some life-support systems, in the wake

of the collision. The crash initially resulted in a loss of as much as 50% of the MIR's electrical power. By Thursday, the MIR had 70% of its power back. The cargo spacecraft sheared off half of a Spektr solar panel and damaged the module itself. When the crew sealed off the compartment, they had to cut cables from three other panels.

Speaking at a NASA press briefing, Linenger characterized the MIR as "a darkened ship" and said the crew would operate "in a slowdown mode" until the effects of the mishap could be corrected. The accident cut off Foale from his sleeping quarters and personal items in the Spektr module, which also contains most of the US experiments aboard MIR. Foale has been aboard MIR since mid-May, when he replaced Linenger.

Linenger told the press conference Wednesday that it was "too early to comment" on what the latest problem aboard MIR might mean for the future of the 11-year-old space station, which already has outlasted its anticipated life span by six years. Linenger said fire and decompression are the two most dangerous things aboard a spacecraft "and we've had both of those." During Linenger's four months aboard MIR early this year, the crew experienced a fire, a near collision with another cargo rocket, and coolant system leaks.

For news updates, see
http://www.hq.nasa.gov/office/pao/NewsRoom/today.html

[ANS thanks Roy Neal, K6DUE, SAREX Working Group Chairman , for this news report.]

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SB SAT @ AMSAT $ANS-180.03
OSCAR-11 REPORT 24 June 1997

HR AMSAT NEWS SERVICE BULLETIN 180.03 FROM AMSAT HQ
SILVER SPRING, MD, JUNE 29, 1997
TO ALL RADIO AMATEURS BT
BID: $ANS-180.03

During the period 15-May to 24-June good signals have once again been received from the 145.826 MHz. beacon.

Telemetry nominal. The battery voltage generally around 13.9 volts, but 14.4 has been recorded on one occasion, and several over 14.0 have been noted. The internal temperatures have continued to fall, due to solar eclipses. The battery temperature is now 0.2 degrees C, i.e. about 22 degrees below the full sunlight condition.

Three WOD surveys have been transmitted during the period. Channels 0, 10 20, 30 (-Y, +Y, -X, +X, solar array currents) dated 01-May continued. This was followed by channels 17, 18, 19, 20 (+X, +Y, +Z facit temperatures, & -X array current) dated 25 May. Currently channels 10, 20, 30, 40 (+Y, -X, +X array currents, array voltage) dated 07-June is being transmitted.

Three AMSAT bulletins by Richard G3RWL have been uploaded. Topics have included the AMSAT-UK colloquium, OSCAR-11 status, LUSAT and FO-20 information. Bulletins always include current Keplerian elements for OSCAR-11, and often for satellites featured in the bulletin.

The operating schedule is unchanged.

ASCII status (210 seconds)
ASCII bulletin (60 seconds)
BINARY SEU (30 seconds)

```
        ASCII TLM (90 seconds)
        ASCII WOD (120 seconds)
        ASCII bulletin (60 seconds)
        BINARY ENG (30 seconds)
```

The mode-S beacon is ON, but telemetry indicates that it has partially failed, and delivering half power. It has been heard, but it is a weak signal, and a good receiving setup is needed. Any reports of reception on 2401 MHz. would be most welcome. Please e-mail g3cwv@amsat.org.

The 435.035 MHz. beacon is normally OFF. However it can sometimes be heard when the satellite is being commanded by ground control, i.e. within range of Guildford, UK. Likely times are between 13:00 and 18:00 UTC, Fridays or at weekends. However it has been heard at other times, and recently was heard unexpectedly during an early morning pass on Wednesday 21 May at 05:30 UTC. When the 435 beacon is transmitting, the 145 beacon is normally OFF. The data transmitted is mainly binary.

OSCAR-11 users are welcome to visit my web site. It contains some software for capturing data, and decoding ASCII telemetry and WOD. There is an archive of raw data (mainly WOD) for analysis, which is continually being expanded, as new data is captured.

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      http://www.users.zetnet.co.uk/clivew/
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[ANS thanks Clive Wallis, G3CWV, for this report.]

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SB SAT @ AMSAT $ANS-180.04
COSMONAUT GETS U.S. LICENSE

HR AMSAT NEWS SERVICE BULLETIN 180.04 FROM AMSAT HQ
SILVER SPRING, MD, JUNE 29, 1997
TO ALL RADIO AMATEURS BT
BID: $ANS-180.04

AMSAT-NA would like to welcome cosmonaut Vladimir Titov, KD5AOS to the ranks of U.S. hams. Bruce Paige, KK5DO , reports that Vladimir took his test at the Clear Lake amateur radio club test session the second Saturday of may. Vladimir is scheduled to go on the shuttle mission in September that docks with the MIR. KD5AOS told Bruce Paige he was taking his ham test because he would not be able to use the Russian callsign from the shuttle. This way, Vladimir can use either callsign depending on which heavenly body he is aboard.

Vladimir Titov, KD5AOS, has also spent a lot of time on the MIR in the past having been one of it's residents. Bruce Paige, KK5DO was one of the VE's that signed his CSCE and 610 and had a chance to talk with Vladimir for a few minutes at the session.

[ANS thanks Bruce Paige, KK5DO, AMSAT Area Coordinator, for this story.]

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SB SAT @ AMSAT $ANS-180.05
WEEKLY SATELLITE REPORT PT 1

HR AMSAT NEWS SERVICE BULLETIN 180.05 FROM AMSAT HQ
SILVER SPRING, MD, JUNE 29, 1997
TO ALL RADIO AMATEURS BT
BID: $ANS-180.05

MIR:
Mike Foale, KB5UAC, has been active on amateur radio during the past few days. The radio has served as a valuable link between Mike and his family and friends during this crisis . Also activity from the MIR packet station has been reported. Frequencies with activity have been 145.985 MHz and the 145.200/800 MHz split.
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SAFEX, MIR 70 cm Repeater
(Uplink 435.750 MHz FM, Downlink 437.950 MHz FM,
Subaudible tone 141.3 Hz)
Not operational at this time..

RS-10
(Uplink 145.865-145.905 MHz CW/SSB, Downlink 29.36-29.4 MHz CW/SSB)
RS-10 Still silent.
RS3A needs some SWL reports of RS-10.
What time you heard RS-10, and also the date.
Send info via packet to Andy, .RS3A.
Packet: RK3KPK@RA3KP.MSK.RUS.EU

RS-12
(Uplink 21.21-21.25 MHz CW/SSB, Downlink 29.41-29.45 MHz or
145.91-145.95 MHz CW/SSB)
Signals on RS-12 in North America during May and June (almost exclusively daylight passes) are weakened by increased ionospheric activity which is keeping 15m active during the daylight hours. This makes it especially important for the 'old timers' to warn the newcomers on RS-12 to set their uplink frequency and leave it alone to prevent sweeping across the 15m band and QRM'ing the terrestrial QSOs in progress
[ANS thanks Dick Montgomery, N3DV, for this update.]

RS-15
(Uplink 145.858-145.898 MHz CW/SSB, Downlink 29.354-29.394 MHz CW/SSB)
WT0N reports that downlink signals are still weak from RS-15, but the bird is still workable.
(Hint: If SSB doesn't work for you, try CW. CW is very easy to hear on the downlink!)

RS-16
RS-16's 435.504 MHz beacon is active. Also, the 29.408 MHz beacon is reported as being heard.
No transponder activity yet.
70cm beacon =RS16 ZEAA ZEJA ZEAA(AA is sent as one characrer);P163,o0,n0,m0,l0,k7,j5,i7,h49,g0,f159,e8,d6,c8,b11,a7.

Transponder information on RS-16.
Uplink = 145.915 - 145.948 MHz
Downlink = 29.415 - 29.448 MHz
Beacons = 29.408 , 29.451 MHz
Pwr 29 MHz Down = 1.2 W /4 W

Beacon 1 = 435.504 MHz
Beacon 2 = 435.548 MHz
Pwr 435 MHz Beacons = 1.6 W
[ANS thanks Bernie Hall, WY4D, for this report..]

FO-20
(Uplink 145.9-146.0 MHz CW/LSB, Downlink 435.8-435.9 MHz CW/USB)
Operating normally. Strong downlink signal. Very busy during passes over North America. Please remember to adjust the

higher frequency for doppler when the bird is in analog, JA, mode.
This means adjust the 70 cm frequency, the downlink, for doppler
shift. You do not have to adjust the 2 meter frequency, the uplink,
for doppler.

KO-23
(Uplink 145.85, 145.9 MHz FM, Downlink 435.175 MHz FM,
9600 Baud FSK.)
KO-23 operating normally.

KO-25
(Uplink 145.980 MHz FM, Downlink 436.5 MHz FM,
9600 Baud FSK.)
KO-25 operating normally.
[ANS thanks Jim Weisenberger, AA7KC, for his reports on
KO-25 and KO-23.]

AO-27
(Uplink 145.85 MHz FM, Downlink:
 436.792 MHz FM (As of April 1, 1997)
Operating normally.
AO-27 (1-Jun-1997- 10:58 UTC Orbit-19182)
The satellite is working normally over North America.
and Europe.
Current AO-27 schedule information can be found at
 www.umbra.com

  Tepr 4 = 32 counts   16 Minutes
  Tepr 5 = 66 counts   18 Minutes
[ANS thanks Michael Wyrick, N4USI, AO-27 Control-op, for this update.]

FO-29
Voice/CW
(Uplink 145.9-146.0 MHz CW/LSB, Downlink 435.8-435.9 MHz CW/USB)
Digital
(Uplink 145.85, 145.87, 145.910 MHz FM, Downlink 435.910 MHz FM 9600 baud
BPSK)
Please remember to adjust the higher frequency for doppler when the bird
is in analog, JA, mode. This means adjust the 70 cm frequency, the
downlink, for doppler shift. You do not have to adjust the 2 meter
frequency, the uplink, for doppler.

The latest FO-29 Schedule can be found at.
http://www.kt.rim.or.jp/~jr1nvu/eindex.html
    June
          27(Fri) 00:11z JA
     July 4(Fri) 09:13z JD Digi-talker
          8(Fri) 09:06z JA
 [ANS thanks Kazu Sakamoto, JJ1WTK, for this report.]

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SB SAT @ AMSAT $ANS-180.06
WEEKLY SATELLITE REPORT PT 2

HR AMSAT NEWS SERVICE BULLETIN 180.06 FROM AMSAT HQ
SILVER SPRING, MD, JUNE 29, 1997
TO ALL RADIO AMATEURS BT
BID: $ANS-180.06

AO-10
 (Uplink 435.030-435.18 MHz CW/LSB, Downlink 145.975-145.825 MHz
CW/USB)
Operational.

Many QSO's heard as when the bird was in view from
north America.

OSCAR-11
(Downlink 145.825 MHz. FM, 1200 Baud PSK. Beacon 2401.500 MHz..)
Operating normally.
The beacon on 2401.500 heard over Spain on 23rd of June and also on
24th, but with weak signals.
[ANS thanks Saludos de Antonio, EA1IW/EA4, for this report.]

During the period 15-May to 24-June good signals have once again been
received from the 145.826 MHz. beacon. Telemetry nominal. The battery
voltage generally around 13.9 volts, but 14.4 has been recorded on one
occasion, and several over 14.0 have been noted. The internal temperatures
have continued to fall, due to solar eclipses. The battery temperature
is now 0.2 degrees C, i.e. about 22 degrees below the full sunlight
condition. The operating schedule is unchanged.
ASCII status (210 seconds)
ASCII bulletin (60 seconds)
BINARY SEU (30 seconds)
ASCII TLM (90 seconds)
ASCII WOD (120 seconds)
ASCII bulletin (60 seconds)
BINARY ENG (30 seconds)

[ANS thanks Clive Wallis, G3CWV, for this information.]

AMSAT-OSCAR-16 (PACSAT)
(Uplink 145.9, 145.92, 145.94, 145.86 MHz FM, 1200 bps Manchester FSK
Downlink 437.0513 MHz SSB, 1200 bps RC-BPSK 1200 Baud PSK.
Beacon 2401.1428 MHz.)
Operational.
Telemetry data received from AO-16
uptime is 1007/06:01:17. Time is Sat Jun 21 11:26:27 1997
uptime is 1013/17:44:51. Time is Fri Jun 27 23:10:01 1997
RC PSK TX Out 0.263 W (Nocturnal orbit)
RC PSK TX Out 0.472 W (Light orbit)
Total Array C= 0.000 Bat Ch Cur=-0.343 Ifb= 0.168 I+10V= 0.198
TX:0109 BCR:1E PWRC:59E BT:3C WC:25 EDAC:1C

Graphic information about WOD/Telemetry values can be found at:
http://www.arrakis.es/~ea1bcu/wod.htm
[ANS thanks Miguel A. Menendez, EA1BCU, for this report.]

DO-17(DOVE)
(Downlink 145.825 MHz FM, 1200 Baud AFSK.
Beacon 2401.220 MHz.)
The beacon on 2401.220 could not be heard over Spain.
[ANS thanks Saludos de Antonio, EA1IW/EA4, for this report.]

WEBERSAT (WO-18)
(Downlink 437.104 MHz SSB, 1200 Baud PSK AX.25.)
No report available.

LUSAT-OSCAR-19
(Uplink 1200 bps Manchester FSK Uplinks:
145.84, 145.86, 145.88, 145.9 MHz FM, Downlink 437.125 MHz SSB,
1200 bps RC-BPSK.)
Operational.
Telemetry data received from LO-19:
uptime is 738/09:21:49. Time is Fri Jun 27 23:26:59 1997
RC PSK TX Out= 0.520 W
Total Array C= 0.008 Bat Ch Cur=-0.245 Ifb= 0.119 I+10V= 0.133

TX:016 BCR:1E PWRC:36E BT:3C WC: 0
NOTE: Add 6.83 minutes to the clock of the satellite.
Graphic and general information about Telemetry values can be found at:
http://www.arrakis.es/~ea1bcu/lo19.htm
[ANS thanks Miguel A. Menendez, EA1BCU, for this report.]

UO-22:
(Uplink: 145.9 or 145.975 MHz FM. Downlink 435.120 MHz FM
9600 Baud FSK.)
A problem with UO-22 seems to be related to the software changes that were made last week prior to the last flight software reload. During the last pass over Surrey on Saturday morning, June 7th, Chris Jackson closed the spacecraft store and forward communications system for general use to allow him to diagnose the problem..
[ANS thanks Chris Jackson, G7UPN / ZL2TPO,
Groundstation and Operations Manager, for this report.]

IO-26 (ITAMSAT)
(Uplink 145.875, 145.9, 145.925, 145.95 MHz FM, Downlink 435.822 MHz SSB,
1200 Baud PSK.)
IO-26 controllers report that the spacecraft is now in IHT mode. The new ROBOT software is under currently undergoing tests. The beacon reports that the digipeater is OFF and that the ROBOT is undergoing tests. Controllers ask that groundstations please do not transmit on any of the satellite's uplink frequencies for the time being.
[ANS thanks Daniele Piercarlo, IK2XRO, ITMSAT Command Station for this report.]

[Please send your Satellite or News reports to ANS Editor B.J. Arts, WT0N, via e-mail, at bjarts@the-bridge.net or to wt0n@amsat.org]

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